

ultimo antice vix dilatato, ad peripheriam obtuse angulato; apertura subangulata, antice vix producta, umbilico margine acuto.

Hab. Gotto, 48 fathoms.

This species resembles a small depressed *Trochus*, with a flat base, a somewhat angular periphery, and a deep rather narrow umbilicus.

13. ADEORBIS SUBANGULATA, A. Ad.

A. testa ovato-orbiculari, subdepressa, vertice elatiusculo, alba, radiatim tenuiter striata, profunde umbilicata; anfractibus 3½, convexiusculis, ultimo antice dilatato, superne obtusim angulato, infra subplano; apertura subquadrata, antice producta; labro supra subangulato, umbilico margine acuto.

Hab. Gotto, 48 fathoms.

The angular projection of the whorls is not at the periphery, but above it, which causes the subquadrangle form of the aperture; whereas in the British *A. subcarinata* and the Japanese *A. carinata* the periphery is carinate, more or less, and the aperture triangular.

14. ADEORBIS DIAPHANA, A. Ad.

A. testa depresso-orbiculari, alba, tenui, pellucida, late et profunde umbilicatu, spira prominula; anfractibus 3½, subplanulatis, lineis incrementi ornatis; anfractu ultimo antice vix dilatato, ad peripheriam rotundato; apertura circulari; umbilico patulo, perspectivo, margine carinato.

Hab. Gotto, 71 fathoms.

This little pellucid shell is more globose than the species of *Adeorbis* generally, and the aperture is nearly circular, with a continuous peritreme. By some it would be called a *Vitrinella*; but the limits of that group do not seem to be yet determined.

February 24, 1863.

E. W. H. Holdsworth, Esq., F.Z.S., in the Chair.

Dr. Sclater exhibited a skin of the female of the splendid Pheasant, figured by Mr. Gould in the 'Birds of Asia' under the name *Diardigallus prælatus*, which had been transmitted to him from Siam by Sir Robert Schomburgk. Dr. Sclater remarked that, it being now certain that the figure upon which *Phasianus crawfurdi*, Gray, had been founded, had been intended for some other bird, the oldest specific name for this species appeared to be *prælatus* of Prince Charles Bonaparte (Compt. Rend. xliii. p. 415, 1856); but that another synonym, not quoted by Mr. Gould, was *Gallus diardi*, under which name Dr. Schlegel had described and figured this bird

in 1857, in his 'Handleiding tot de Beoefening der Dierkunde' (vol. i. p. 379).

Dr. J. E. Gray exhibited a specimen of the young of the domestic Fowl in spirits, with a singular malformation of the beak and foot, and read the following letter addressed to him by Mr. W. Horn concerning it:—

" 21 Belitho Villas, Barnsbury,
February 13th, 1863.

"DEAR SIR,—With this I send you the body of the chicken I spoke to you about, the beak and feet of which bear a close resemblance to those of a Parrot, and I beg your acceptance of it.



"It may perhaps be as well if I state the circumstances which, it has occurred to me, may account for this freak of nature. I had one of the Parrot tribe, which, on account of the noise it made, was frequently placed in the yard where I kept a breed of white bantam fowls. If any of these came near the Parrot's cage to pick up the food it scattered, it became much enraged and screamed violently. Soon after this I sat two hens on eggs, and in each brood I had one chicken of this strange form. My impression at the time was, and now is, that one of the hens had been frightened by the Parrot, and an effect thereby produced on some of her eggs.

"When I first mentioned it to you, I thought it had but three toes; on closer inspection I perceive there is a fourth toe; but the form of the foot still very closely resembles that of a Parrot.

" I am,

" Dear Sir,

" Yours very truly,

" WM. HORN."

"P.S. The Parrot was never let out of the cage, and was, I believe, a female."

" J. E. Gray, Esq.,
British Museum."

Mr. F. Buckland gave some account of the progress of his experiments in hatching and rearing Salmon and Trout by artificial means in the tanks of the Zoological Society and elsewhere, and made some remarks on the monstrosities observed by him amongst the embryos of these fishes.

The following letter, relating to the habits of the Caddis-worm (larva of *Phryganea*), addressed to Dr. Gray by Miss M. E. Smee, was read to the Meeting:—

“ Feb. 19, 1863.

“ MY DEAR SIR,—I have ventured to send for your inspection a box containing cases made by the Caddis-worm, the worms of which were collected by myself from that part of the Wandle which runs through our garden at Wallington.

“ I found, on examining the natural cases, that they were made of different materials. For instance, some were constructed of small stones finely glued together, others of sticks, and some were formed of sticks and stones combined. Again, some were made of leaves of water-plants, and I observed that others were formed of the shells of creatures which inhabited the same stream.

“ As I had never seen or heard of these Caddises before, I felt much astonished that creatures somewhat resembling maggots, and living at the bottom of the river, should live in houses built by themselves, and yet that these houses should differ so greatly in their construction. Indeed I was so interested that I determined, if possible, to discover the capabilities which these creatures possessed of forming different kinds of dwellings under different circumstances. I very much desired to know whether they could construct cases from other kinds of materials, besides those usually existing in the river in which they lived.

“ To ascertain the fact, I accordingly turned the worms out of their natural cases, and gave them different substances to work upon; but I found that they had not an equal facility with every material; for whilst with some they formed cases which were attended with good results, with others they entirely failed.

“ The worms succeeded well when they were supplied with pieces of glass, amethyst, cairngorm, cornelian, onyx, agate, coral, coralline, marble, shells, jet, brass shavings, gold-leaf, silver-leaf, when existing as small fragments.

“ When, however, the worms were supplied with round objects, they invariably failed; and although I have repeatedly tried them with small glass beads and other round objects, I never found that with these they were capable of forming a case.

“ But these Caddises also failed to make themselves houses from other causes than that of the roundness of an object; for I found that if these creatures were placed among materials strongly scented, or which contained poisonous matter, not only were they unable to build with them, but in most cases the substances proved fatal to the worms. When I tried them with pine-wood, my Caddises would in a short time become completely stupified from the turpentine contained in the wood, from which they often never recovered. With pieces of coal, brick, or slate they never succeeded in making a case, although these substances did not cause their death. The reason for their failure I attributed to some kind of odour which might have emanated from these different materials. With painted or varnished objects they also failed. Not every kind of metal was suit-

able for their buildings ; for neither with tin, or lead, or copper did they succeed. I found that if one Caddis was not able to make a case out of any one kind of material, no other Caddis could succeed, although I might try several others with the same material.

“ After a Caddis had made two or three houses, I used to give it something fresh to work upon, and oftentimes I supplied it with a totally different material. With these new substances it proceeded to build as quickly as before, constructing its new habitation according to the shapes of the pieces it had then to deal with.

“ The maximum amount of artificial cases I could get any Caddis-worm to make was five, the last one being very brittle, the parts being scarcely glued together. After they had built so many houses, if turned out of the last house, they would simply bury themselves and remain in a quiescent state. But I think that if the Caddises were procured early in the year, the number of their cases might be considerably increased.

“ It is a most curious sight to see these little creatures building their houses, beginning by cementing a number of pieces loosely together. This is merely used as a foundation for building its subsequent structure ; for it is always cast off before the house is completed. After they have laid the foundation, they proceed by lifting up each piece of stone, or whatever the material may consist of, with their feet, turning it on all sides to discover whether it will fit into the space, and if it does not, as is frequently the case, that piece of stone is instantly rejected, and another is tried after the same manner, until they succeed in finding a suitable piece, when it is cemented to the other stones by a secretion which I ascertained proceeded from their mouth.

“ When their house is made, the body of the creature is completely encased ; their heads and feet alone protruded.

“ In their natural state, the weight of these cases varies much. They are twice as heavy, and made of more solid materials, when the creatures inhabit rapid streams than when they live in still waters. The reason of this difference is, I suppose, to enable themselves to keep, by the weight of their cases, at the bottom of the water.

“ I noticed that, after the Caddis-worms were turned out of their cases, air-bubbles appeared on the surface of their bodies. If placed under these circumstances in running water, these air-bubbles would cause the creatures to rise to the surface and there float until they died from exhaustion, caused by their hard endeavours to reach the bottom. According to the roughness of the water, so must be the weight of their cases.

“ When in the pupa-state, their heads and feet are entirely withdrawn into their cases ; and they remain in a dormant state, neither eating nor moving, until they turn into flies, their cases being more or less split in the act of transformation.

“ I used to feed some of my Caddises whilst in the larva state with small pieces of raw meat, which they ravenously devoured ; they would even eat a common house-fly, leaving only the wings, head, and leg ; but however hungry they might be, yet they never could be induced to touch cooked meat.

“ I found it was quite necessary for the Caddises to have plenty of food whilst in the larva state, to enable them to have strength to undergo the transformation.

“ Trout are the great enemies of the Caddises, as they eat them up, cases and all, in every stage of their existence ; but they consider the worms without the cases as especially dainty morsels.

“ On the 24th of January this year, I observed that the Caddises were just hatched ; and although some were so small that they were only visible with a lens, yet every one was busily employed in making its little house.

“ They have grown so quickly that, since that date, they are now quite conspicuous at the bottom of the river.

“ The box I send to you contains in the centre the cases made from the various materials I gave to the worms, and encircling the artificial cases are the natural habitations as taken from the river.

“ Trusting you will find them worthy of your inspection,

“ Believe me to remain,

“ My dear Sir,

“ Yours faithfully,

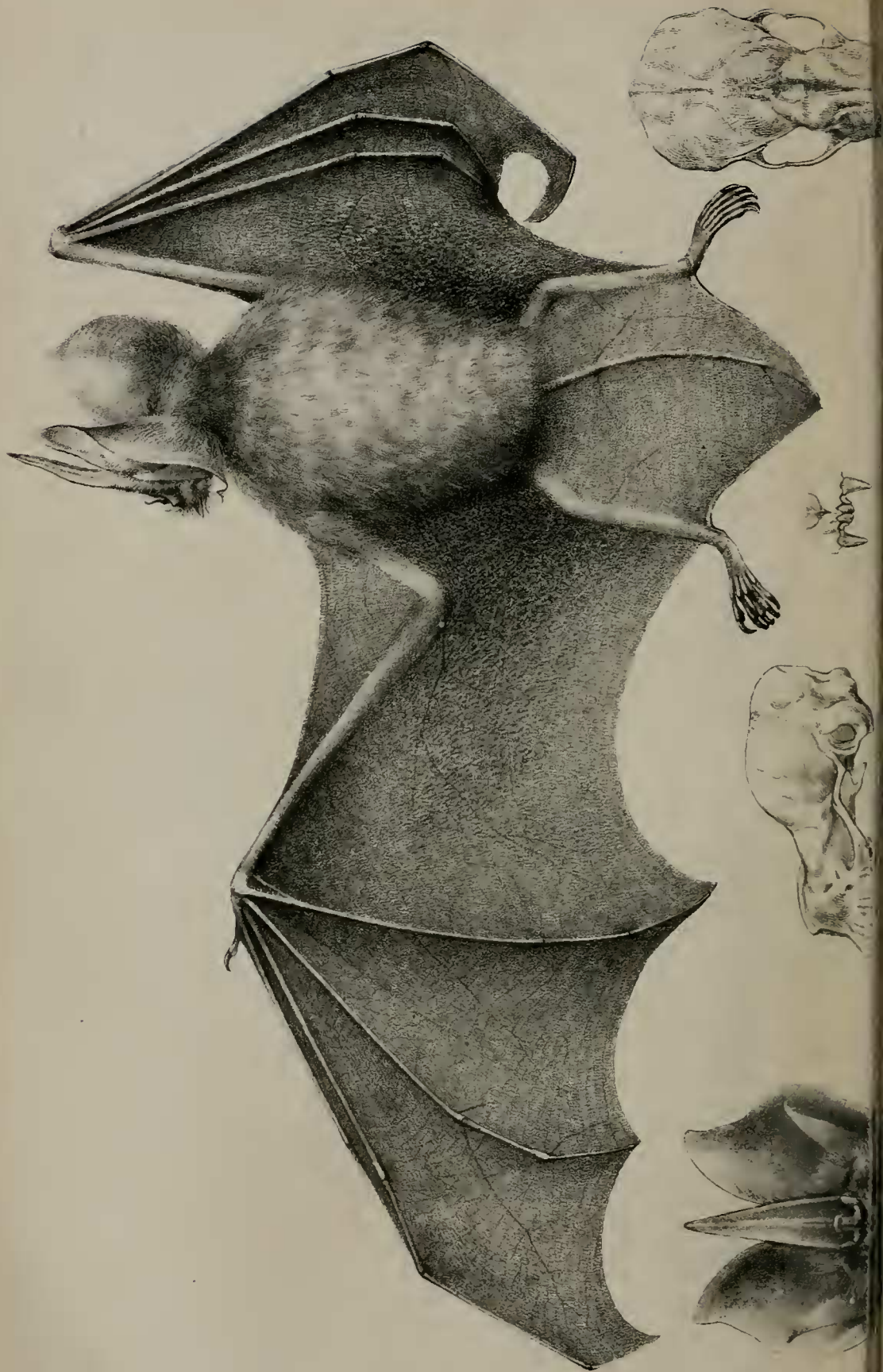
“ ELIZABETH MARY SMEE.”

“ To Dr. Gray, F.R.S.,
of the British Museum.”

“ P.S. The Caddises are so excessively pugnacious that I am always obliged to keep each in a separate vessel. If that precaution were not taken, instead of peaceably constructing their houses, a fierce warfare would be carried on between them, which would result in the death of the weakest party. After one was killed, the survivor would set about building its house. I generally kept about thirty small white earthen jars at a time, each being filled with water, and containing a single Caddis-worm, with the particular material of which I wished its house to be constructed.

“ The Caddises are provided with two little hooks, situated one on each side of the *tergum*. These little hooks are curved and sharply pointed. With these they securely fasten themselves in their houses, by which extra strength is given to resist their being torn from their cases. At first, on account of these hooks, I experienced some difficulty in turning them out of their habitations. Indeed, I was often so unfortunate as to break and consequently spoil their cases ; or sometimes, after catching the creature by its head and trying to pull it forcibly out, I have known the creature to retain its hold so firmly by means of its hooks, that its body has been pulled in two rather than it would let go its hooks and suffer its house to be taken from it. At last I found that when a pin was gently pushed into the end of the case, the slight irritation would cause the Caddis to crawl entirely out of its house, and thus I was enabled to preserve the case without causing injury to the worm.”





The following papers were read:—

1. ON A NEW GENUS AND SPECIES OF LEAF-NOSED BATS IN THE MUSEUM AT FORT PITT. BY ROBERT F. TOMES.

(Plate XII.)

In a collection of Bats preserved in spirit, and forming part of the Museum at Fort Pitt, Chatham, which has been submitted to my examination by Dr. Selater, is one which constitutes a new and well-marked genus of the *Phyllostomidæ*, or Leaf-nosed Bats of the New World. It is more nearly allied to the genus *Macrotis* than to any other; but differs from it, among other respects, in having its lance-shaped nose-leaf developed to an enormous extent. I characterize and name it as follows:—

LONCHORHINA, gen. nov.

Top of the head somewhat elevated; face depressed; facial crests complicated, consisting of a very long and pointed posterior leaf, in front of which are two pits, more or less surrounded by prominent fleshy excrescences; lower lip with a smooth triangular space in front; ears long and broad; longest finger with four phalanges; wing-membrane extending to the distal extremity of the tibia, and attached to the os calcis; tail extending to the whole length of the interfemoral membrane, as in the genera Macrotis and Vespertilio.

The posterior lanceolate facial leaf is in this Bat of great length, being fully as long as the head of the animal; it is pointed, and has a very distinct midrib. In front of this leaf is a deep pit, which is divided into two by a ridge which is continuous with the central rib of the leaf; in the bottom of the pits thus formed are the nostrils, which are small and ovoid. The septum between them is produced anteriorly, and developed into a prominent and trifoliate fleshy excrescence, which almost conceals the pits behind; it has a central or upright lobe, exhibiting outwardly a rounded footstalk, surmounted by a flattened top, the edge of the flattened summit being directed upwards, and having five very slightly prominent, but very distinct, denticulations. Besides this central lobe are two lateral ones, which present a thin edge externally, and are continuous with each other across the bottom of the central one. Where this horizontal ridge runs across the central one, it is produced into a distinct point or tubercle. On each side of the pits, behind the trifoliate leaf, is a prominent, acutely conical, vertical projection about a line in length. Below the trifoliate leaf is a transverse hollow, divided vertically by a faintly marked septum, and below this is another transverse leaf, forming the lower boundary of the hollow; this leaf is but slightly prominent, and has its ends curved upwards and terminating in two warty excrescences contiguous to the two acute projections near the nostrils. Below this is a flat space, constituting the upper lip.

The lower lip has a large central space of a triangular form, which is naked, and bounded laterally by a broad, smooth, and somewhat elevated margin; at its inferior point is a single small wart, and in

the middle, forming the front of the lip, is an enclosed granulated space.

The ears are as long as the head, broad and pointed, with the lobular parts much developed, and extending forward almost to the corner of the mouth. Tragus more than half the length of the ear, tapering evenly to a subacute point; near the base, externally, is a prominent though somewhat obtuse angle, and above this a notch, forming another angle, more acute, but less prominent, than the other; above the notch there is no angle, but a rounded and slightly prominent part, and from this to the tip the tragus tapers pretty evenly. The auditory opening is partly surrounded (posteriorly) by a prominent fleshy ridge of a lobular form, which will fold forward and completely close the opening.

The longest finger is composed, as in all the Phyllostomidæ, of four phalanges; the thumb has the two phalanges of nearly equal length. The wing-membrane extends barely to the distal extremity of the tibia, which it crosses over, in front, and is attached to the base of the *os calcis*, somewhat as in the genus *Natalus*.

The tail is long, but composed of only nine joints, and extends the whole length of the interfemoral membrane, as in the genus *Vespertilio*. The feet are large, with the toes of equal length, and the claws long and hooked.

The skull in its general outline bears considerable resemblance to that of *Macrotis*; but the cerebral region is more elevated, and the facial part more depressed. It is so much depressed just at the posterior boundary of the nasal bones as to occasion a deep hollow or longitudinal pit. The nasal bones are very differently formed to those of *Macrotis*, being very much arched from the fore to the hinder part. The maxillary bones are considerably inflated between the nasal opening and the orbits. All the facial part of the skull is much less compressed than in *Macrotis*.

Dentition:—Inc. $\frac{4}{4}$; Can. $\frac{1-1}{1-1}$; Premol. $\frac{2-2}{2-2}$; Mol. $\frac{3-3}{3-3} = \frac{16}{16} = 32$.

The middle *upper* incisors are large, flat, and somewhat pointed; the lateral ones minute and pointed, and with a posterior lobe near the base; the canines are rather small and acute; the first premolar is very small, roundish, and with two cusps, the anterior one being the most prominent; the second premolar is very prominent, and has the same carnassial form which is so common in the *Chiroptera*.

The lower incisors are symmetrically arranged, rather small, and flat, with their edges somewhat lobated; the canines are slender, straight, and with a distinct cingulum; the first premolar is smaller than the second, conical, acute, and with a slightly projecting posterior lobe near the root; the second premolar is rather long, angular, and acute, with a well-marked cingulum.

The tongue is thick and short, with six well-marked, transverse, curved ridges, which are most distinct on the front part, and behind these are indications of others. All the upper surface of the tongue is clothed with fine points, which are directed backward, like those on the tongue of the Felidæ.

LONCHORHINA AURITA, n. s.

Nearly the whole of the face is hairy, the hair having the same quality and colour as that of the back; the nose-leaf and fleshy excrescences are naked, but a few hairs spring from the edges of the former near the base; ears hairy behind for three-fourths of their length; inside they have a distinct band of hairs on the inner margin, which does not extend further than three-fourths of their length from the base; and there is another, but smaller, band of hairs inside the lobular parts.

The fur of the upper parts is nearly confined to the body, but there is a little scattered on the humerus and the contiguous end of the forearm. Beneath, there is a little whitish hair powdered on the membrane near the flanks and forearms.

All the upper parts are light reddish brown, the fur nearly unicolor; beneath similar, but duller in colour and paler on the pubes. Cutaneous system dark reddish brown.

Length of the head and body	2	3
——— of the tail	1	9
——— of the head	0	$9\frac{3}{4}$
——— of the ears	0	$8\frac{3}{4}$
——— of the tragus	0	7
Breadth of the ears	0	8
——— of the tragus, at its widest part.	0	3
Length of the forearm.	1	$11\frac{1}{2}$
——— of the longest finger	3	10
——— of the fourth finger.	2	$6\frac{1}{2}$
——— of the thumb	0	4
——— of the tibia	0	$9\frac{1}{2}$
——— of the foot and claws	0	7
——— of the <i>os calcis</i> , about.	0	6
Expanse of wings	13	4
Length of the nose-leaf, taken behind	0	$9\frac{1}{2}$
Total length of the skull, from front of nasal bones	0	$8\frac{3}{4}$
Breadth across the orbits.	0	5
Length from the point of the middle upper incisor to the posterior edge of the last molar	0	4
Length of the lower jaw	0	6

Hab. The bottle from which this specimen was taken contained several West Indian species, in which the *Mormops blainvillii* and the *Chilonycteris gymnonota* of Wagner were conspicuous. The latter is distinguished from other species of the genus by having the wing-membranes springing from the middle of the back, instead of the sides of the body; and there can be but little doubt that it is the *Pteronotus davyi* of Dr. Gray. Of course Dr. Gray's specific name will take precedence of that given much later by M. Wagner, and the name of *Pteronotus* may be conveniently used to distinguish the species as a subgenus of *Chilonycteris*. It is probable that the specimen from which I have taken the foregoing description may have been received from the same locality as the *Mormops* and *Pteronotus*.